

Claims

1. Wave power assembly comprising a hull (3) and a linear electric generator (5), the rotor (7) of which by means of connection means (4) is connected to the hull so that lifting force is transferred from the hull (3) to the rotor (7) and the stator (6) of which is arranged to be anchored at a sea/lake bottom (1), which assembly also comprises spring means (11, 11a, 11b) arranged to exert a force on the rotor (7), which force during at least a part of the motion of the rotor (7) is counter-directed the lifting force exerted on the rotor (7) by the hull (3), the rotor (7) as a consequence of the motion of the hull (3) and the force exerted by the spring means (11, 11a, 11b) being arranged to execute a reciprocating motion between two end positions defining the length of stroke of the rotor (7), the assembly being arranged for a fixed maximum length of stroke, **characterized in** that the spring means (11, 11a, 11b) is arranged to, at a motion amplitude corresponding to 50 % of the maximum length of stroke of the rotor (7), exert a force, the size of which varies by a factor of 2,5 as a maximum.
2. Wave power assembly according to claim 1, **characterized in** that the size of said force varies by a factor of 1,25 as a maximum.
3. Wave power assembly according to claim 2, **characterized in** that the size of said force is substantially constant.
4. Wave power assembly according to any one of claims 1–3, **characterized in** that the spring means (11, 11a, 11b) is arranged to, at a motion amplitude corresponding to 90 % of the maximum length of stroke of the rotor (7), exert a force, the size of which varies by a factor of 10 as a maximum.
5. Wave power assembly according to claim 4, **characterized in** that the spring means (11, 11a, 11b) is arranged to, at a motion amplitude corresponding to 90 % of the maximum length of stroke of the rotor (7), exert a force, the size of which varies by a factor of 1,5 as a maximum.

6. Wave power assembly according to any one of claims 1–5, **characterized in** that the spring means comprises a gas spring (11b).
7. Wave power assembly according to any one of claims 1–6, **characterized**
5 **in** that the spring means comprises a mechanical spring (11, 11a).
8. Wave power assembly according to any one of claims 1–7, **characterized in** that the spring means has a non-linear spring characteristic.
- 10 9. Wave power assembly according to any one of claims 1–8, **characterized in** that the spring means comprises an actively controlled spring.
10. Wave power assembly according to any one of claims 1–9, **characterized in** that the spring means comprises a plurality of springs.
- 15 11. Wave power assembly according to any one of claims 1–10, **characterized in** that the spring means is arranged to, over a short distance next to the end position of the rotor (7) that corresponds to the position of the hull (3) on a crest of a wave, at the maximum length of stroke, exert a force that is many times greater
20 than the maximum force below a motion amplitude of 90 % of the maximum length of stroke of the rotor (7).
12. Wave power assembly according to claim 11, **characterized in** that said short distance constitutes less than 10 % of the maximum length of stroke of the
25 rotor.
13. Wave power assembly according to claim 11–12, **characterized in** that the spring means (11, 11a, 11b, 15) is so arranged that the force next to said end position increases with decreasing distance to the end position.
- 30 14. Wave power assembly according to any one of claims 11–13, **characterized in** that the spring means (11, 11a, 11b, 15) comprises one or more separate spring elements (15) for applying force over said short distance.

15. Wave power assembly according to claim 14, **characterized in** that each of said separate spring elements (15) consists of a mechanical compression or tension spring.

5 16. Wave power plant **characterized in** that it comprises a plurality of wave power assemblies (20a–20c) according to any one of claims 1–15.

17. Use of a wave power assembly according to any one of claims 1–15 in order to generate electric energy.

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18. Method in order to generate electric energy **characterized in** that the electric energy is generated by means of one or more wave power assemblies according to any one of claims 1–15.

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